APPARATUS, METHOD AND SYSTEM FOR
CORRELATED NOISE REDUCTION IN A
TRELLIS CODED ENVIRONMENT

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Abstract of the Disclosure

10 An apparatus, method and system are provided for correlated noise reduction, in a trellis decoding environment, such as second generation HDSL, in which crosstalk impairments may be significant. The preferred embodiments provide equalization and correlated noise reduction, utilizing a training period to generate corresponding coefficients, and utilizing two different training error signals. In addition, the apparatus method and system also provide continued and adaptive correlated noise

15 reduction during data transmission, utilizing two additional error signals, a trellis error signal and a tentative error signal. The trellis error signal is a decision error of a selected previous state of a selected trellis path, in which the selected trellis path has a smallest cumulative error of a plurality of trellis paths, and the selected previous state is preferably the immediately previous state. The tentative error signal is formed as a difference

20 between a delayed, tentative symbol decision and a delayed received data signal subsequent to equalization, in which the delay is preferably one symbol time. The various embodiments may be utilized with trellis encoding, with or without data precoding.

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